

In re Patent Application of:
OCKENFUSS ET AL.
Serial No. 10/004,142
Filed: NOVEMBER 14, 2001

REMARKS

Claims 22 to 26 and 29 to 32 are currently pending. Claims 22 to 26 and 29 to 32 have been rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 5,080,739 (Fernandez et al) in view of United States Patent No. 4,373,775 (Gasparian) and United States Patent No. 4,097,126 (Mahlein et al).

On August 22, 2000 JDS Uniphase filed a patent application for a thermally stable optical filter including a "washer" frame member, and on October 22, 2002 United States Patent No. 6,469,847 issued therefore. Subsequent to filing the original patent application, the researchers at JDS Uniphase realized that the internal stresses caused by the substrate on the thin film filter can mitigate the effect of the washer, and therefore lessen the overall performance of the filter. Accordingly, in order to eliminate this unpredictability, the present invention was developed, in which the internal stresses were relieved by removal of the substrate, prior to the attachment of the "washer". Accordingly, the present invention is overcoming a problem that was not recognized until after the device disclosed in the '847 patent was developed, therefore it is difficult to imagine how the solution would be obvious in view of references issued previously. Providing a washer on the surface of a thin film filter to reduce the shift in center wavelength caused by temperature changes was novel, therefore the removal of the substrate prior to the attachment of the washer should also be novel and nonobvious. Claim 22 has

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been amended to clarify that the frame member is mounted on the face of the optical filter.

Applicant wishes to respectfully point out two areas in the Examiner's argument, which Applicant believes is flawed. First, and foremost, that the Mahlein et al reference teaches the use of:

"a multilayer thin-film interference filter... having a first surface attached to the planar surface of said first frame member to define an unobstructed optical aperture through said multilayer interference filter";

"whereby the frame member applies a stress to the multilayer interference filter during changes in temperature, thereby reducing a shift in the center wavelength transmitted by the multilayer interference filter".

The device in Figure 2 of the Mahlein et al reference discloses the use of a metal ring attached to the edge of a lens 6 for pulling on the edges thereof, not a frame member with its planar surface mounted on a thin film filter.

The Mahlein et al reference does not relate to an optical filter, let alone, a thin film filter, but rather a lens or mirror. Accordingly, it could not teach or even infer compensating for a shift in center wavelength, since absolutely no filtering ever takes place. The Mahlein reference simply teaches that two materials stuck together that have different coefficients of thermal expansion will expand differently when heated. This fact cannot be expanded

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to include using a frame member on the face of a thin film filter to compensate for a shift in center wavelength.

Furthermore, the second point of contest is the statement that "one would have been motivated to have the coefficient of thermal expansion of the multi-layer interference filter be smaller than the coefficient of thermal expansion of the frame, such that the frame member applies stress to the multi-layer interference filter during changes in temperature, thereby reducing a shift in center wavelength".

By disqualification of the Fan reference Applicant has eliminated the prior art reference relating to this aspect of the invention. Accordingly, in the absence of this reference, it is not for the Examiner to make a blanket statement that this aspect is now obvious, since the issued patent proves that this aspect is not obvious.

Moreover, as the Examiner admits, the frame 14 in the Fernandez reference has nothing to do with thermal compensation, i.e. relative coefficients of thermal expansion are never discussed, and is simply used as a support and to facilitate manipulation of the film coating 10.

The invention according to the present invention lies in the combination of a freestanding multi-layer thin-film filter, removed from its substrate to eliminate internal stresses created during formation, mounted on a frame, which provides a structural base for the filter, as well as providing the necessary thermal stabilization, which is even more effective due to the removal of the substrate. None of the cited references disclose thermal stabilization of a

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multi-layer thin-film filter, let alone the added enhanced benefits realized by the removal of the filter from its original substrate to become freestanding. Accordingly, no reference alone or in combination with another reference discloses or even infers the combination according to the present invention.

The informalities have been corrected in Claim 22. Accordingly, reconsideration of the objection thereto is hereby requested.

As such, it is respectfully submitted that all of the claims remaining in the application are in condition for allowance. Early and favorable consideration would be appreciated.

Due to the nature of the Action and the importance of this invention to the Company, Applicant's undersigned agent and/or representative Doug MacLean will be contacting the Examiner in the near future to ensure that the response was received and completely understood.

Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this paper, including Extension of Time fees, to Deposit Account No. 50-1465 and please credit any excess fees to such deposit account.

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Respectfully submitted,



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CERTIFICATE OF FACSIMILE TRANSMISSION

I HEREBY CERTIFY that the foregoing correspondence has
been forwarded via facsimile number 703-872-9306 to the
COMMISSIONER FOR PATENTS, this 10 day of February, 2004.


